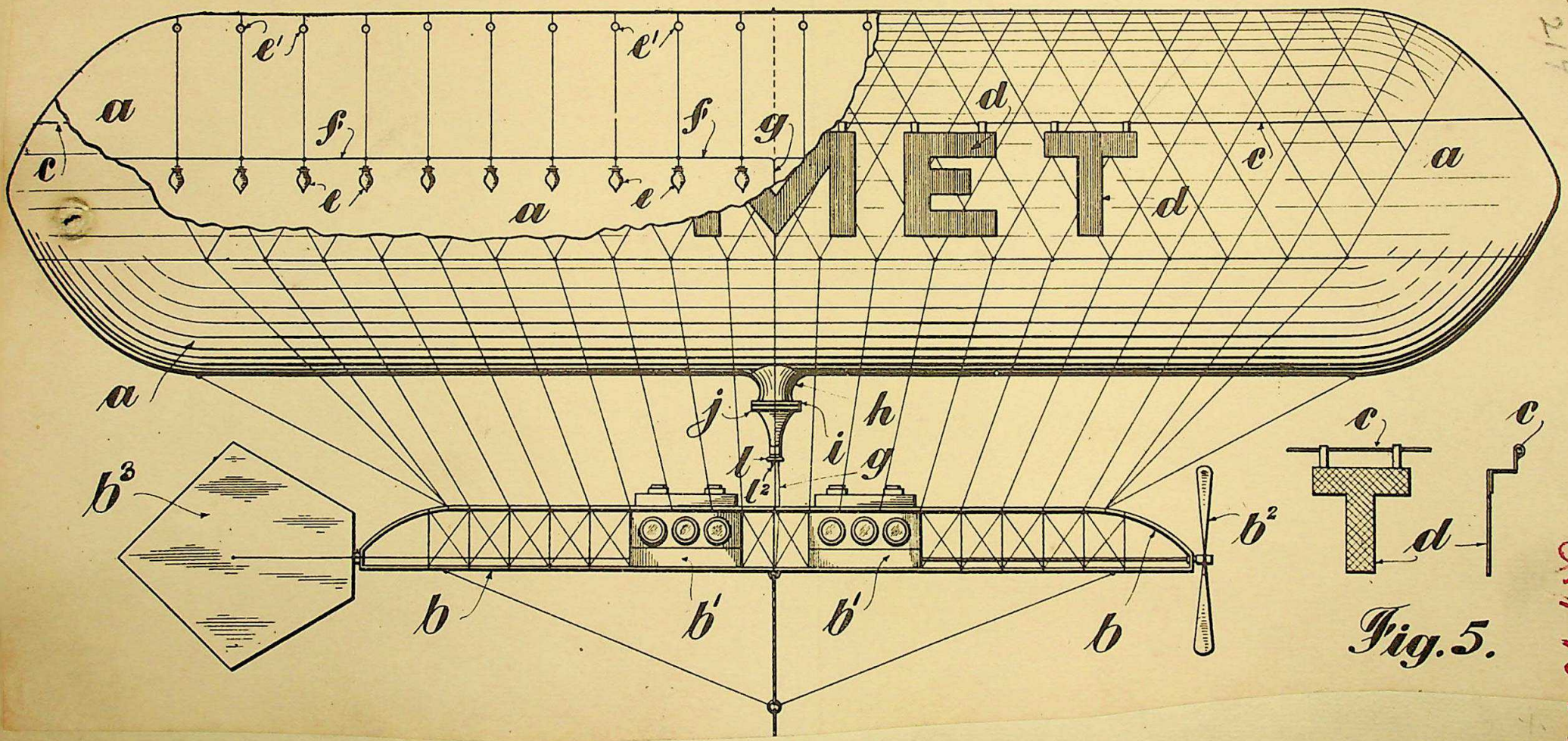


Fig. 5.

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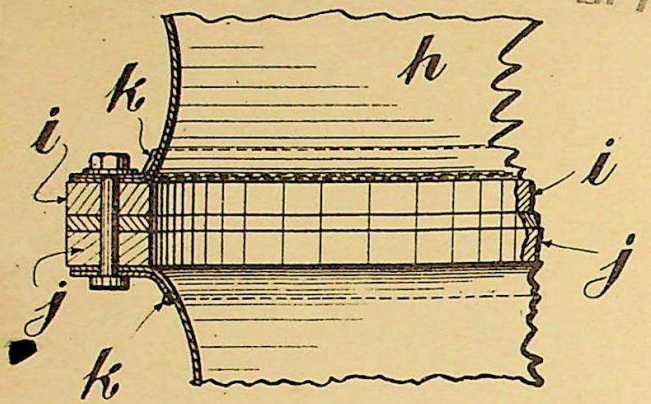


Fig. 2.

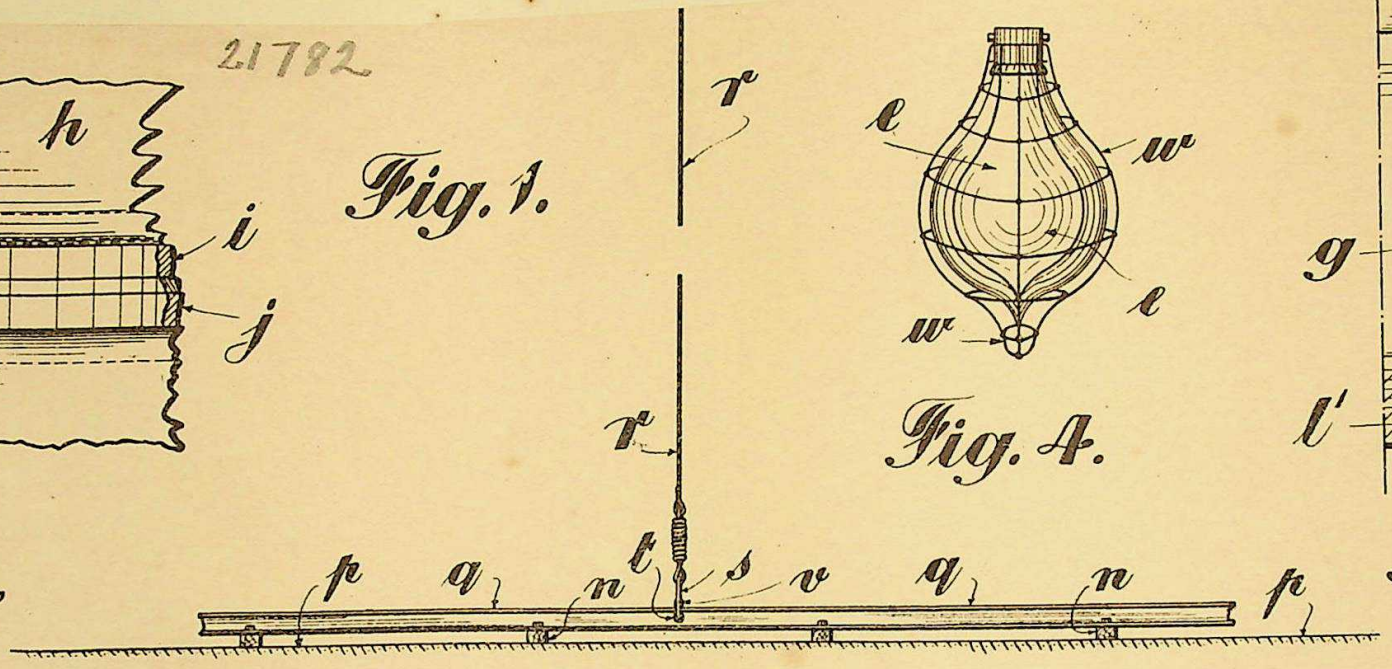


Fig. 1.




Fig. 4.

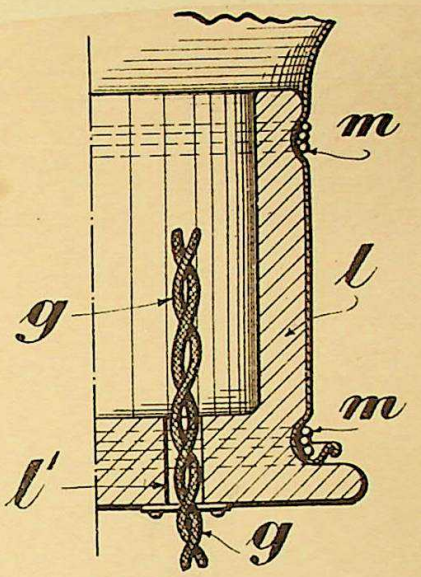


Fig. 3.

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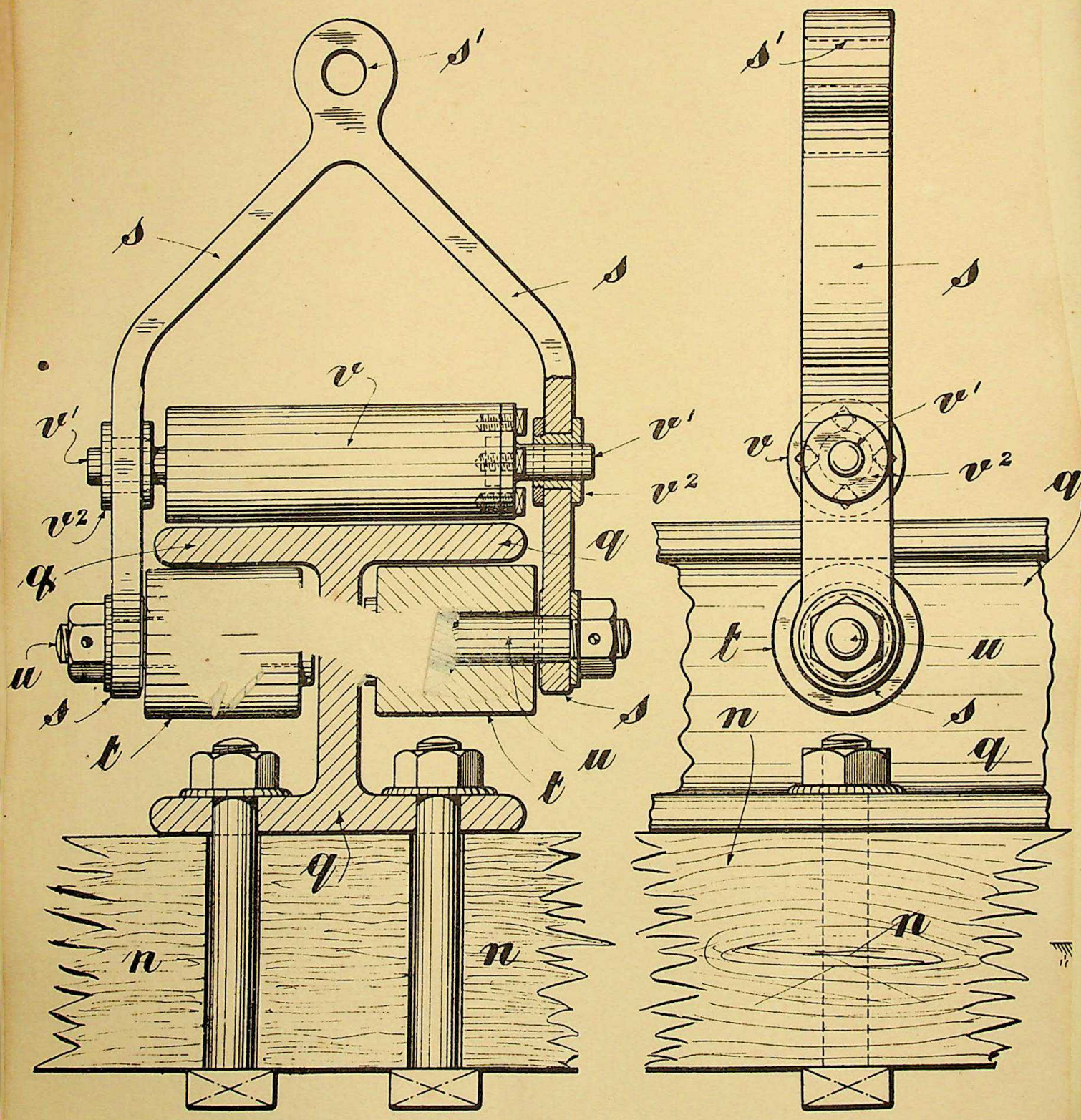


Fig. 6.




Fig. 7.

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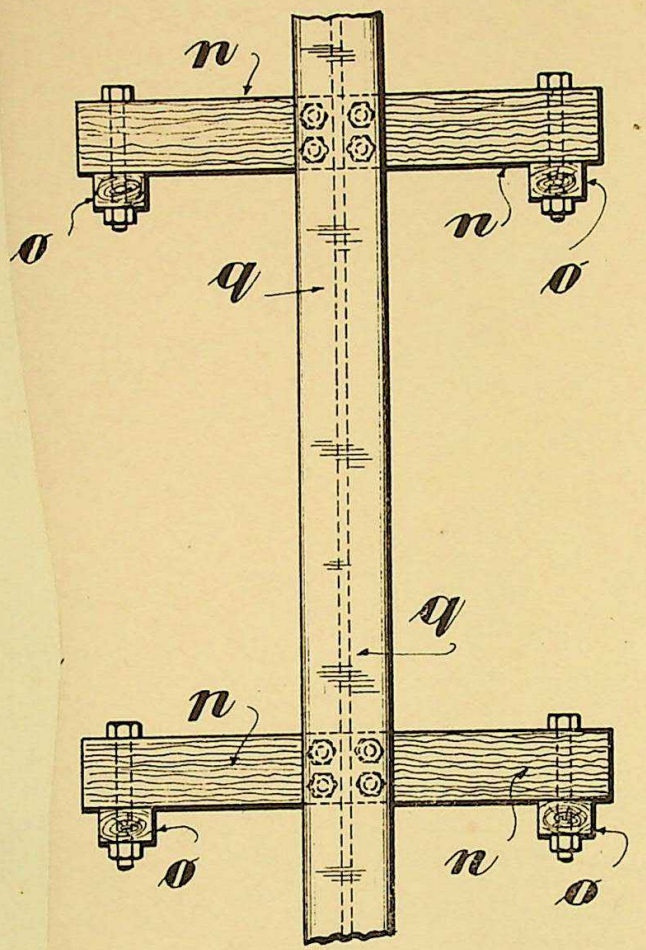


Fig. 8.

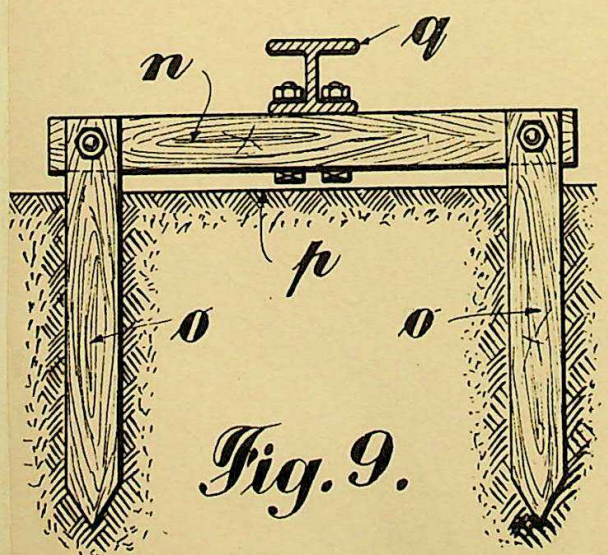


Fig. 9.

Malby & Sons, Photo-Litho.

40-127

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N° 21,782 A.D. 1909

Duplicate.

*Date of Application, 24th Sept., 1909*

*Complete Specification Left, 25th Apr., 1910—Accepted, 26th Sept., 1910*

PROVISIONAL SPECIFICATION.

# New or Improved Means for Displaying Advertisements by Day and Night.

We, THOMAS REUBEN DAY, of 42, John Dalton Street, Manchester, Estate Agent, and WILLIAM CHARLES ALLEN, of 1, Brighton Road, Didsbury Road, Stockport, Designer, do hereby declare the nature of the said invention to be as follows;—

These improvements refer to balloons or air-ships, as used in displaying advertisements, and which, may, whilst captive, be caused to move about in like manner to a dirigible balloon and thereby take up different positions relatively to a given area, or a given direction in which it may be desired to exhibit the advertisements. A further object is to propel the balloon by propellers driven electrically, the electric power being, by preference, obtained from a generator on the ground level and being conveyed to a motor in the balloon through the means used for holding it captive.

According to the improvements the balloon is, by preference, of elongated (cigar) formation, so that it will afford the maximum surface on each side for displaying advertising matter which is applied according to the said former invention. To the balloon (or its car or suspended under-frame) is applied a propellor (or propellors) and an electric motor. Extending from the balloon (or its car underframe) is a cable or cables either exposed and flexible, or enclosed and rigid.

Along the ground are laid two long metal rods or rails constituting electric conductors and held in position by suitable insulated stakes or other suitable means and connected with any suitable form of electric generator.

The cable aforesaid connected to the balloon is provided with pulleys which engage the rails on their underside.

With the motor in operation it rotates the propellor, which, in acting on the air, drives the balloon forward in a direction parallel with the ground rails, the pulleys and cable, whilst holding the balloon captive, also allowing of the movements of the balloon.

The rails may each be straight and in one length, or they may be made in short lengths and be arranged to form say a circle, square or triangle.

Whilst preferring to propel the balloon electrically it may be propelled merely by drawing it along by hand or mechanically, or by allowing it to drift with the wind. In this case a single pulley and rail may be used. Suitable reversing gear may be applied whereby the motor may propel the balloon in either direction.

Whilst intended chiefly for use on a large out-of-door scale, the invention may be carried out on a small scale for use in-doors and in this connection it may be used as a toy.

The current for lighting up the balloon or air ship may be supplied from the same source used for supplying current to the motor, or an independent generator may be provided.

In addition to the use of the invention for displaying advertisements it may also be used for marking out a track or course for other balloons or air ships,

or as a light-ship for marking a particular point, the broad object of the invention being an illuminated balloon or air-ship, in combination with means for enabling the illumination to be used for display purposes. These last named uses of the invention will apply to a captive (non-travelling) as well as to a dirigible balloon or air-ship.

For the Applicants,
JOHN G. WILSON & Co.,
Chartered Patent Agents,
55, Market Street, Manchester.

## COMPLETE SPECIFICATION.

### New or Improved Means for Displaying Advertisements by Day and Night.

We, THOMAS REUBEN DAY, of 42, John Dalton Street, Manchester, Estate Agent, and WILLIAM CHARLES ALLEN, of 1, Brighton Road, Didsbury Road, Stockport, Designer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

These improvements have for their object the application of novel means whereby a captive balloon or air-ship used in displaying advertisements by day and night and further means whereby the balloon or air ship may, whilst captive, be caused to move about in like manner to a dirigible balloon and thereby take up different positions relatively to a given area, or a given direction in which it may be desired to exhibit the advertisements.

The balloon is, by preference, of elongated (cigar) formation, so that it will afford the maximum surface on each side for displaying advertising matter. To the car or suspended under-frame of the balloon is applied a propellor or propellors. Extending from the balloon (or its car underframe) is a cable or cables either exposed and flexible, or enclosed in a tube of insulating material and rigid.

Along the ground is laid a long metal rail held in position by suitable stakes or other suitable means. The cable aforesaid connected to the balloon is provided with rollers which engage the rail on its underside.

With the propellor, acting on the air it drives the balloon forward in a direction parallel with the ground rail, the rollers and cable, whilst holding the balloon captive, also allowing of the movements of the balloon.

The rail may be straight and in one long length, or it may be made in short lengths and arranged to form say a circle, square or triangle.

Suitable reversing gear may be applied whereby the balloon may be propelled in either direction.

Upon the accompanying drawings:—

Figure 1 illustrates a general side elevation of the improved captive balloon or air-ship with its ground rail arranged according to the invention.

Figure 2 illustrates an enlarged sectional elevation of a part of the balloon nozzle.

Figure 3 illustrates another sectional elevation of another part of the nozzle.

Figure 4 illustrates one of the lamps and its guard wires used with the balloon.

Figure 5 illustrates one of the letters used with the balloon and the manner in which it is suspended,

Figure 6 illustrates a cross section, and

Figure 7 a side elevation of the preferred arrangement of pulleys for holding the balloon and guiding it along the rail.

Figure 8 illustrates a plan and

Figure 9 a transverse elevation of the ground rail, and the means used for holding it in position.

Referring to Figure 1, the gas chamber or envelope *a* of the balloon or air ship which is preferably elongated in shape is made in any of the usual ways. From such balloon is suspended by means of cords a light framing, constituting a car *b*. Upon each side of the balloon is fitted one or more long wires or cords *c* and from such wires or cords are suspended the letters *d* or other facia requiring to be displayed. These facia will preferably be composed of a translucent material, the material being coloured or clear according to the effect desired. Usually the material will be coloured.

Within the balloon are suspended a number of electric incandescent lamps *e*. The wires by which the lamps are suspended hang from insulated loops $e^1$ and to prevent the lamps swinging against each other longitudinal and transverse cross-wires or cords are provided. *f* being the longitudinal wires. By these wires or separate wires, the electric current is conveyed to the lamps, the wire being connected to leading in wires *g* central to the length of the balloon. The lamps will preferably be arranged on a level along the longitudinal axis of the balloon as shown.

Below the balloon is the manhole inlet nozzle *h*, which at its lower end is secured to a metal hoop or ring *i*, see Figure 2. To this ring is secured another ring *j* by which, and bolts and nuts, and a metal shield *k*, a further and tapered inflating nozzle is secured to the balloon.

The lower portion of this further nozzle is made as per section shown in Figure 3, the part *l* being a cup-like block or bush which fits into the fabric of the nozzle and to which the fabric is secured by stout india-rubber rings *m* or the like.

In the bottom of the block or bush is an opening $l^1$ for electric wires to pass through, these being carried into the balloon and to the lamps, and extending down to the ground level or to a generator or accumulator carried in the car *b*. Also in the block is a gas inlet inflator valve $l^2$ see Figure 1.

To sleepers *n*, firmly secured by stakes *o* to the ground *p* see Figures 8 and 9 is bolted the rail *q* by which and the cable *r* yoke *s* and pulleys *t* the balloon is held captive, while free to be travelled or to travel along the rail. The arrangement of the yoke and pulleys is shown more clearly in Figures 6 and 7. The yoke *s* terminates in an eye $s^1$ to which the cable is secured and its ends extend downwards and below each edge of the rail *q* where they are fitted with studs *u* upon which are rotatably mounted the rollers *t*.

Also carried by the yoke is a roller *v*, the position of which is such that with the rollers *t* in contact with the under-faces of the rail it lies immediately above the top face of the rail, and therefore serves, when the cable becomes slack, to prevent the rollers *t* getting out of their correct relative positions or of leaving the rail. The roller *v* will usually be fitted with end trunnions $v^1$ and be mounted to rotate in brass bushes $v^2$ in the arms of the yoke.

Whilst preferring the H section of rail any other and suitable section may be used, and the rollers *t*, *v* and yoke *s* be adapted to suit, the main requirement being to afford means for holding the balloon captive relatively to the rail whilst also allowing it to travel along the rail.

Within the car may be cabins $b^1$, with look out openings for passengers.

The car may also be fitted with an engine and (or) motor and a propellor $b^3$ and rudder $b^3$ for enabling the balloon to be propelled and manœuvred along the track merely by the displacement of the air.

When a motor is used the electric current may be conveyed to the motor through conductors from the ground. Or the cable itself (suitably insulated) may form the conductors. When the current is conveyed through cable there

will usually be two rails, one for conveying and the other returning the current, the rails and the rollers being suitably insulated.

When the lamps within the balloon are lighted they illuminate the entire balloon, making it visible at night at a great distance and in such way the balloon forms an excellent advertising medium.

The balloon is filled with gas in the usual way and the lamps offer no danger even should the material of which the lamp bulb is made break.

To reduce the risks of breakage the lamp bulbs will be protected by a wire or other suitable guard *a* see Figure 4.

The advertising or other facia is shown in the drawings as applied to the exterior of the balloon; it may also be applied to the side of car *b* and to the cable *r* and be illuminated by further lamps.

Obviously the facia will usually be trade advertising matter but it may also be indicating or signalling matter fixed or moving. In this connection the advertising or other matter may be made up of electric lamps, capable of being switched off and on at will and arranged exterior to the balloon.

We are aware that it has previously been proposed to employ captive advertising balloons internally illuminated by electric lamps fed through the cable, having letters written or placed on their netting or envelopes, and also that a balloon has been provided with a cable, extending from the car to one or more rollers, which run along a rail on the ground, and conveying the electric current to the driving motor carried by the balloon, hence we make no broad claim.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. An illuminated advertising, indicating or signalling balloon or airship comprising, in combination, a balloon or envelope provided with a car, and said envelope on its exterior supporting letters or other advertising media, a cable or cables extending from the car of the balloon and connecting to a yoke fitted with rollers (these latter—the yoke and rollers—being arranged and operating as described with reference to Figures 6 to 9 of the drawings), a track or rail with which the rollers engage, and means for propelling and controlling the whole apparatus, substantially as herein set forth.

2. In an illuminated advertising, indicating or signalling balloon or airship as claimed in Claim 1, the arrangement of track consisting of a flanged rail (or rails) bolted to sleepers and secured by stakes to the ground, and a yoke and rollers for engaging said rail, substantially as herein described and illustrated in Figures 6 to 9 of the accompanying drawing.

3. In an illuminated advertising, indicating or signalling balloon or airship, the construction, arrangement and combination of parts, substantially as herein described and illustrated upon the accompanying drawings.

Dated this 23rd day of April, 1910.

For the Applicants,
JOHN G. WILSON & Co.,
Chartered Patent Agents,
55, Market Street, Manchester.

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